

Appl. No. 10/698,395

REMARKS/ARGUMENTS

35 U.S.C 103 Rejections

The Examiner has stated that claims 1 to 17, 26 and 27 are unpatentable under 35 U.S.C. 103(a) over Rotstein *et al.* (United States Patent No. 6,909,707) in view of Wong *et al.* (United States Patent No. 6,330,460).

The law on obviousness under 35 U.S.C. 103 was recently addressed in *KSR Int'l v. Teleflex, Inc.*, No. 04-1350, slip op. at 14 (U.S., Apr. 30, 2007). Following this, examination guidelines were released by the USPTO on October 10, 2007 in regards to determining obviousness under 35 U.S.C. 103. According to these guidelines, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.* 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Court are as follows:

- (1) Determining the scope and content of the prior art;
- (2) Ascertaining the differences between the claimed invention and the prior art; and
- (3) Resolving the level of ordinary skill in the pertinent art.

The Graham factors, including secondary considerations when present, are the controlling inquiries in any obviousness analysis. Once the findings of fact are articulated, Office personnel must provide an explanation to support an obviousness rejection under 35 U.S.C. 103.

According to KSR, for the Patent Office to properly combine references in support of an obviousness rejection, the Patent Office must identify a reason why a person of ordinary skill in the art would have sought to combine the respective teachings of the applied references.

(1) Determining the scope and content of the prior art

The Examiner argues that Rotstein teaches "...the respective signal generators using the spreading code with a mutual micro-timing offset that is large enough that destructive cancellation substantially does not occur between the signals transmitted on the pair of antennas". It is respectfully submitted that this is not the case. In Rotstein, each antenna uses a

Appl. No. 10/698,395

respective PN offset. A "PN offset" is commonly used in cellular systems to identify different antennas or base stations. A PN offset typically is an offset in a common PN code in some multiple of 64 chips. See for example Applicant's specification on page 4, line 25 through page 5, line 5. It is noted that if the Examiner conducts a search for "PN offset" many references will be found that confirms this definition for an PN offset. The Examiner alleges that there is a micro-timing offset between the code used for adjacent antenna (as claimed in claim 1). However, Rotstein does not teach a micro-timing offset. The Examiner is referred to Applicant's specification on page 11, line 23 through page 12, line 26, for example, implementation of the micro-timing offset. The point of a micro-timing offset is that the offset is not large enough to introduce base station identification ambiguity, but it is small enough to be individually resolvable so as to avoid destructive interference. Clearly, in Rotstein, the whole point of the different PN offsets used by adjacent antennas is to allow separate identification of the two offsets. Thus, it is respectfully submitted that the Examiner's factual finding is an error in that Rotstein does not teach the use of micro-timing offset as alleged by the Examiner.

The Examiner alleges that Wong teaches a respective signal comprising a common overhead component common to all the signals. The Examiner refers to column 7, lines 40 through 47. This reference specifically teaches away from the use of micro-timing offsets in overlapping beams. In particular, it is first noted that the beams of Figure 3 of Wong are mobile station specific. These beams do not collectively define a coverage area. Rather, there is beam for each user. For the most part, the beams do not overlap. Quoting from column 7, line 48:

"In the present example of FIG. 3, it will be seen that beams for serving mobiles M1 and M4 spatially overlap and cannot be served simultaneously since forward link signal powers will create mutual interference. In this example, a separate beam is sent to mobile M4 during one time slice of a service interval. During another time slice of the service interval simultaneous beams are sent to mobiles M1, M2 and M3 (so long as the mobiles M1, M2 and M3 are separated by a minimum angular spacing relative to base station 12)".

Thus, it is respectfully submitted that in fact a common overhead signal is not transmitted to a plurality of fixed beam that define a coverage area. In Wong, the beams are not fixed, and the transmission is not performed simultaneously, rather, when there is an overlap the transmission is performed sequentially.

Appl. No. 10/698,395

(2) Ascertaining the differences between the claimed invention and the prior art

In the preceding section, Applicant has identified various errors in the Examiner's factual inquiry concerning the determination of the scope and content of the prior art. This has an effect upon the differences between the claimed invention and the prior art. In particular, the claimed limitation of the application of a mutual micro-timing offset of a spreading code on an adjacent antenna is something that is recited in the claims and not taught in any of the prior references. In addition, the claim requires a common overhead to be sent on all the beams defining a coverage area; in contrast, Wong sends overhead to subsets of non-overlapping beams during sequential time periods.

(3) Resolving the level of ordinary skill in the pertinent art

The Examiner has not provided any comment as to the level of ordinary skill in the pertinent art. Rather, the Examiner simply states that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the CDMA system of Rotstein with the common overhead component of Wong for the purpose of aiding each mobile in determining its highest data rate as taught by Wong". Thus, it is respectfully submitted that this underlying factual inquiry has not been conducted by the Examiner.

Obviousness Analysis

Having examined the grand factual inquiries, the analysis now turns to whether there is a case for obviousness. To begin, as detailed above, many of the features that are alleged to be included in the cited references in fact are not; the Examiner has provided no rationale for why the differences would be obvious to a person skilled in the art.

The Examiner has provided a reason for combining the references as required by KSR but applicant respectfully submits that the reasoning is not sound in view of the differences noted above, and in view of teaching away and non-combinability points raised below.

KSR specifically indicates that teaching away is a strong indication of non-combinability of references. In this case, as discussed above, Wong specifically teaches away from the use of a micro-timing offset to overcome interference between adjacent overlapping beams. Referring to column 7 lines 40 to 67, rather than using a micro-timing offset, where there is an overlap between beams a time division multiplexing approach is used to send the overhead channel.

Appl. No. 10/698,395

This is obviously completely the opposite effect being achieved with Applicant's claimed invention, namely the allowance of simultaneous transmission of the common overhead channel on overlapping beams. Furthermore, Rotstein relates to a fixed beam system whereas Wong relates to adapted beam system where as a respective beam for each mobile is defined rendering the references non-combinable.

It is respectfully submitted that the combination of the fact that the references do not teach the elements of the claims as alleged by the Examiner, and the fact that the references in fact contain a direct teaching away, the obviousness rejection cannot stand.

Turning now to the Examiner's comments on claim 5. The Examiner argues that "Rotstein further teaches wherein the respective mutual micro-timing offset is small enough that substantially no signal source ambiguity occurs at a receiver". The portion of Rotstein does not in fact teach that. The point of the PN offset concept using conventional system is that the PN offset is large enough such that no signal source ambiguity occurs at a receiver. In particular, each offset is so large that it is clear that each signal is in respect of a different transmitter. That is the whole point of using the PN offsets for cell identification. In contrast, claim 5 recites that the PN code offset is small enough that there is no signal source ambiguity. In particular, the receiver will interpret the various micro-offset PN code transmissions as coming from the same transmitter. If the offset was too large, then it would appear to be coming from different transmitters and hence be ambiguous. Thus, claim 5 is teaching exactly the opposite of what the objective of the conventional PN code offset system referred to in Rotstein is trying to achieve.


Regarding claim 8, the Examiner indicates that "Rotstein further teaches at least one chip and less than eight chips", and refers to column 2, lines 24 to 42 where the PN codes have offsets or shifts of any of 0 to 511 chips. The referred to section of Rotstein does not teach anything of the sort. However, it appears the Examiner is referring to the number of different possible PN offsets. This is discussed in Applicant's text on page 4, line 27 through page 5, line 5. Typically there are 512 different possible PN offsets each of which is a respective multiple of 64 chips. Thus, PN offset of "0" would refer to no offsets; PN offset of "1" would refer to a 64 chip offset. This certainly would not include the range being covered in claim 8 which refers to a micro-timing offset.

Appl. No. 10/698,395

Similar arguments applied to the other independent claims and the dependent claims that depend from them.

The Examiner is respectfully requested to reconsider and withdraw all the 35 U.S.C. 103 rejections and to allow the application.

Respectfully submitted,
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